

## **Public Chapter 367, Public Acts 2009**

*The State Board of Education shall update members of the Select Oversight Committee on Education on national research on the differentiated pay issue and review programs that are being studied in other states.*

**Prepared by the Tennessee  
State Board of Education**

## Review of Differentiated Pay

The purpose of this summary is to review the national research on differentiated pay and to provide a brief overview of programs using new teacher compensation models.

A more comprehensive review can be found at the Center for Education Compensation Reform (CECR)<sup>1</sup>: <http://cecr.ed.gov/guides/research.cfm>. CECR was funded by the U.S. DOE in 2006 to raise national awareness of alternative and effective strategies for educator compensation reform.

This review discusses several issues addressed by the research:

1. In order to be effective, new teacher compensation plans need a sustained financial commitment, linked to broader education strategies, which include professional development.
2. Perceptions of fairness are critical for success.
3. In general, teachers with graduate degrees are not more or less effective than other teachers.
4. In mathematics, teachers with master's degrees in mathematics *are* more effective.
5. In general, the biggest gains in teacher effectiveness occur during the first three years.
6. There is insufficient data from research to determine the level of incentives needed to attract high quality teachers to hard-to-staff schools.
7. Recruiting math and science teachers may require significant incentives, ranging between \$10,000 and \$15,000.
8. Value added measures of performance are good indicators of past teacher performance, but should not be used to predict who will be good teachers in the future.

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<sup>1</sup> The Center for Educator Compensation Reform (CECR) works to raise national awareness of alternative and effective strategies for educator compensation reform. It serves as the primary online repository for information, tools, and resources to support Teacher Incentive Fund (TIF) grantees, policymakers, state officials, and district professionals with the design and implementation of educator compensation reform policies. CECR was awarded to [Westat](#)—in partnership with [Learning Point Associates](#), [Synergy Enterprises](#), [Vanderbilt University](#), and the [University of Wisconsin–Madison](#)—by the [U.S. Department of Education](#) in October 2006 under contract number ED-06-CO-0110.

## **Differentiated Pay Research & Principles**

### **1. Ensure a Sustained Financial Commitment, Linked to Broader Strategies**

Changes to teacher compensation structures should be part of a more comprehensive strategy to improve student achievement. The CECR notes the following in regards to designing new compensation structures for teachers.

1. Programs must be aligned with other state or district training and support efforts.
2. Improvements in teacher quality and student achievement may take some time to realize.
3. Policymakers must send a message that the system is here to stay.
4. There must be a sustained financial commitment.
5. Teachers should be involved in the program design.

See, [http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis\\_Q%20F23.pdf](http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis_Q%20F23.pdf)

### **2. Perceptions of Fairness**

Teacher perceptions of fairness affect their willingness to participate and are important for meaningful program implementation. The CECR notes that “Performance pay systems that rely on a variety of measures rather than on a single measure tend to be more likely accepted by teachers. Measures might include student performance gains, demonstrations of knowledge and skill, and peer and principal review (Azordegan et al., 2005).”

“The research that is available suggest that when teachers are involved in program design, it maximizes program effectiveness by increasing the likelihood of teacher and/or union approval, perception of fairness, and acceptance (Hatry, Greiner, & Ashford, 1994; Odden, Kelley, Heneman, & Milanowski, 2001; Milanowski, 2003).”

See, [http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis\\_Q%20F24.pdf](http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis_Q%20F24.pdf)

See, [http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis\\_Q%20F22.pdf](http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis_Q%20F22.pdf)

### **3. Graduate Degrees, in General**

On average, educators who have completed graduate degrees are not significantly more effective at increasing student learning than teachers with bachelor's degrees. The CECR notes, "The majority of studies conclude that teacher education and experience are not strong predictors of teacher effectiveness, as measured by student achievement gains."

"Clotfelter, Ladd, and Vigdor (2007a) also found that on average, elementary teachers who had completed master's degrees were no more or no less effective than others at raising student achievement, with one exception. Elementary teachers with master's degrees appeared to be less effective, on average, than those without advanced degrees if they earned the degrees more than five years after they started teaching."

See, [http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis\\_Q%20A2.pdf](http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis_Q%20A2.pdf)

### **4. Graduate Degrees, in Mathematics**

On average, high school educators with master's degrees in mathematics are more effective at increasing student learning. The CECR notes, "Holding some types of advanced degrees may have a positive effect on student achievement at the secondary level..."

1. Based on the National Educational Longitudinal Study (1988),
  - a. students assigned to high school teachers with Master's degrees in mathematics made greater gains relative to students assigned to teachers without advanced degrees.
  - b. students assigned to high school teachers with bachelor's degrees in science made greater gains than students assigned to teachers with non-science degrees.
2. High school teachers completing master's degrees were more effective at increasing student achievement than those without advanced degrees (Clotfelter, Ladd, & Vigdor, 2007).

See, [http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis\\_Q%20A2.pdf](http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis_Q%20A2.pdf)

## 5. Teacher Experience

The biggest improvements in teacher effectiveness occur during the first years of teaching. “Research does show that teachers become more skilled with experience...The preponderance of evidence suggests, however, that teacher experience matters most during the first several years of a teacher’s career.”

“Gordon, Kane, and Staiger (2006) found large gains in teacher effectiveness between the first and second year of teaching, much smaller gains between the second and third year, and no substantial improvement after the third year in the classroom. Murnane (1975) found that teacher effectiveness improves rapidly over the first three years of teaching and reaches its highest point between the third and fifth year but found no substantial improvement after year five.”

See, [http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis\\_Q%20A2.pdf](http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis_Q%20A2.pdf)

## 6. Attracting Teachers to Hard to Staff Schools

Research is just beginning in this area.

1. A Wisconsin study estimated pay increases would range between 15 and 20 percent for the district of Milwaukee (Imazeki, 2005).
2. A study of the state of Washington estimated pay increases could range from \$4,300 to \$5,300 (Goldhaber, DeArmond, & DeBurgomaster, 2007).
3. A study of teacher mobility patterns in North Carolina estimated that \$1,800 annual bonuses could reduce teacher turnover by 12 percent (Clotfelter, Glennie, Ladd, and Vigdor, 2006).
4. A Texas study estimated pay increases to reach very disadvantaged school setting would range between 20, 30, or even 50 percent (Hanushek, 2001).

See, [http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis\\_Q%20B8.pdf](http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis_Q%20B8.pdf)

## **7. Recruiting Math and Science Teachers**

Regional pilots provide incentives that range between \$10,000 and \$15,000, based on a commitment of at least 3 years.

1. Salary incentives of several thousand dollars are not big enough to be effective.
2. The difference between teacher salaries and private sector salaries in these areas are “much larger than in other fields”.
3. A 2002 salary comparison revealed a median difference of \$10,000 to \$20,000 for students majoring in mathematics, accounting, engineering.

See, [http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis\\_Q%20B7.pdf](http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis_Q%20B7.pdf)

## **8. Applying Value Added Measures**

Value added measures are good indicators of teacher effects, in the past, but cannot be used to predict who will be good teachers in the future.

“However, in a school setting we can only know who was a good teacher in the past, not who will be a good teacher in the future. This is an important distinction because research shows that these teacher effects have a strong random element (e.g. Ballou, Sanders, & Wright, 2004; Aaronson, et. al., 2007; Koedel, 2007). Koedel, for example found that the year-to-year correlation in teacher effects was only about 0.35. This means that it is difficult to identify in advance which teachers will be top performers in the next year. It is even more difficult to predict who will be top performers over the next several years.”

See, [http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis\\_Q%20A1.pdf](http://cecr.ed.gov/guides/researchSyntheses/Research%20Synthesis_Q%20A1.pdf)

## **Review of Programs: *What is happening in other states?***

The Center for Educator Compensation Reform has profiled over 30 programs currently implementing new teacher compensation models. The following pages highlight seven of such programs, including statewide, rural, medium, and large city examples.

See, <http://www.cecr.ed.gov/initiatives/grantees/profiles.cfm>, for a more comprehensive overview of each program.

**Demographic:** Rural

## **Alaska Teacher and Principal Incentive Project**

Duration

- 5 year teacher incentive grant (Began in November 2006)

Resources

- Federal, state, local
- Department of education contributes matching funds in partnership with local school district

Focus

- Math in hard to staff areas of the state
- Shortage of highly qualified teachers

Districts

- Three rural school districts

Incentives

The project incorporated a combination of incentive strategies at the school and classroom level, related to the following types of indicators:

- schoolwide growth (\$2,500-\$5,500)
- teacher performance incentives, including evaluation, teacher leadership, and professional growth plans (\$250-\$1,000)
- additional responsibilities (tutoring, leadership, mentoring) (\$1,500-\$3,000)
- highly qualified in math (\$2,000-\$4,000)
- incentives for math teachers (\$750-\$2,250)
- incentives for developing math learning plans (\$750-\$2,250)

See, <http://www.cecr.ed.gov/initiatives/profiles/pdfs/Alaska.pdf>

**Demographic:** Large Central City

## **Chicago Teacher Advancement Program (TAP)**

### Duration

- 5 year teacher incentive grant (Began in November 2006)

### Resources

- Federal, private foundations, local
- Support from three foundations  
(Broad Foundation, Joyce Foundation, Public Education Fund)

### Focus

- 40 of the highest need regular and charter schools  
(24,000 students, 1,240 teachers, 40 principals)

### Districts

- Chicago Public Schools

### Incentives

- Schoolwide bonus for teachers, based on value added achievement gains and TAP evaluation model which includes skills, knowledge, and responsibilities (\$2,000)
- Administrators eligible for a bonus, based on schoolwide value added (\$5,000).
- Other school staff eligible based on schoolwide value-added (\$500).
- Teachers eligible for individual bonus based on schoolwide and classroom value added student achievement gains and the average scores based on multiple observations using TAP (\$4,000 on average).
- Shifting weight of performance evaluation towards student achievement for administrators over a 3 year period.
  - Up to Year 2 – 50% achievement / 50% TAP implementation
  - Year 3 and Beyond – 75% achievement / 25% TAP implementation

See, <http://www.cecr.ed.gov/initiatives/profiles/pdfs/Chicago.pdf>

**Demographic:** Medium Sized City

**Charlotte-Mecklenberg Schools  
Leadership for Educator's Advanced Performance (LEAP)**

Duration

- 5 year teacher incentive grant (Began in 2006)

Resources

- Federal and local
- Reallocation of existing pay-for-performance program
- By year 5 of grant, 75% of program funded locally

Focus

- 16 high need schools
- 14,000 students, 1,300 teachers / principals

Districts

- Charlotte-Mecklenberg Schools

Incentives

- Up to 10% merit-based supplement based on academic achievement goals
- Earn bonuses and stipends for attending professional development or assuming additional leadership responsibilities
- \$10,000 signing bonus for teachers and principals who transfer to hard to staff, high need schools
- \$8,000 signing bonus for hard to staff subjects

See,

<http://www.cecr.ed.gov/initiatives/profiles/pdfs/CommunityTrainingandAssistanceCenter.pdf>

**Demographic: Statewide Rural Pilot**  
**The South Carolina Teacher Incentive Fund**

Duration

- 5 year teacher incentive grant (Began in November 2006)  
There is a past history of using the TAP program since 2001

Resources

- Federal and state

Focus

- High poverty, high rural, low educational attainment  
(84% free / reduced lunch, 76% scoring below basic on state assessments)

Districts

- Darlington County
- Florence School District 3
- Georgetown County
- Laurens SD 56
- Marlboro County
- Spartanburg SD 7

Incentives

- \$2,000 and \$5,000 based on implementation of the TAP model
- \$1,000 additional incentive for hard to staff subjects
- For teachers
  - 60 % based on academic achievement,
    - 20% schoolwide growth
    - 40 % value-added gains
  - 40% based on other, valid classroom indicators
- For administrators
  - 75% school value added growth
  - 15% implementation of TAP
  - 10% other TAP data indicators

See, <http://www.cecr.ed.gov/initiatives/profiles/pdfs/SouthCarolina.pdf>

**Demographic:** Rural, High ELL  
**The University of Texas System Teacher Incentive Fund Program**

Duration

- 5 year teacher incentive grant

Resources

- Federal and local

Focus

- School districts not meeting statewide academic progress goals

Districts

- Hays Consolidated Independent School District (ISD)
- Manor ISD
- Richardson ISD
- Lancaster ISD
- Bryan ISD
- Frenship ISD
- Lytle ISD

Incentives

- Creation of \$2,000 bonus pool per teachers with bonuses ranging from \$200 to \$5,000.
- \$4,000 incentives for school administrators
- \$2,000 to \$4,000 recruitment incentives for high performing teachers and principals, based on academic outcomes.
- 50% of incentives are based on academic achievement at the individual teacher and school level.
- 50% of incentives are based on classroom observations

See, [http://www.cecr.ed.gov/initiatives/profiles/pdfs/University\\_of\\_Texas.pdf](http://www.cecr.ed.gov/initiatives/profiles/pdfs/University_of_Texas.pdf)

**Demographic: Rural**  
**Florence County School District TAP**

Duration

- 5 year teacher incentive grant (Began in 2008)

Resources

- Federal, state, and local

Focus

- Improvement of generally low teacher salaries in comparison to surrounding school districts  
(3,000 students, 200 professional staff)

District

- Florence County School District 3
- Florence County School District 1

Incentives

- Focus on teacher professional development via master / mentor teachers
- Large annual bonuses ranging from \$500 to \$10,000, based on individual and school achievement gains.

See, <http://www.cccr.ed.gov/initiatives/profiles/pdfs/FlorenceCounty.pdf>

**Demographic: Rural**  
**Fort Lupton Teacher Incentive Fund**

Duration

- 5 year teacher incentive grant (Began in 2008)

Resources

- Federal, state, local, and private

Focus

- Improvement of generally low teacher salaries in comparison to surrounding school districts

District

- Weld County School District  
(2,443 students, 52% Free / reduced lunch)

Incentives

- Teacher bonuses based on measurable goals (individual / schoolwide) and assuming additional responsibilities (mentoring).

See, <http://www.cecr.ed.gov/initiatives/profiles/pdfs/FortLupton.pdf>

**Demographic:** Medium Sized City  
**Denver Professional Compensation Systems for Teachers (ProComp)**

Duration

- 5 year teacher incentive grant (Began in 2006)

Resources

- Federal and local
- At end of grant Denver Public Schools will assume full district funding for ProComp

Focus

- All teachers hired after January 2006

District

- Denver Public Schools

Incentives

- Up to 40 percent increase in teacher salary over a 25-year career, based on academic gains.
- Annual bonuses from administrators

See, <http://www.cccr.ed.gov/initiatives/profiles/pdfs/Denver.pdf>